

## Claims

1. A method for producing a mold for molding objects in a material, called the moldable material, whereby a  
5 pattern of the objects to be molded is used and the pattern is covered with material, called the molding material, wherein expanded graphite is utilized as the molding material, the pattern (3) is covered with expanded graphite to form a continuous layer of  
10 expanded graphite or a plurality of separated layers (5, 6) of expanded graphite distributed over the pattern, and the layer(s) of expanded graphite are then compressed against the pattern so as to obtain for each layer a consolidated graphite block (5a, 6a)  
15 which is impermeable to the moldable material.
2. A method as claimed in claim 1, wherein a first layer (5) of expanded graphite is formed on one side of the pattern and a second layer (6) of expanded graphite is  
20 formed on the other side of the pattern so as to completely envelop the pattern (3), in order to obtain a mold in two parts (10, 11).
3. A method for producing a mold for molding objects in a  
25 material, called the moldable material, whereby a pattern of the objects to be molded is used and is covered with a material, called the molding material, wherein expanded graphite is utilized as the molding material, at least one layer (40, 41), called a pre-  
30 consolidated layer, of expanded graphite recompressed in at least one direction so as to have a density ranging from 30 to 50 kg/m<sup>3</sup>, is used, the pre-consolidated layer(s) (40, 41) is/are placed on the pattern (42) and said pre-consolidated layer(s) are

then compressed against the pattern so as to cover the pattern and to obtain for each layer a consolidated graphite block which is impermeable to the moldable material.

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4. A method as claimed in any one of claims 1 to 3, wherein the layer(s) of expanded (5, 6) or pre-consolidated (40, 41) graphite is/are compressed so as to obtain a consolidated block or blocks of graphite  
10 having a density greater than 40 kg/m<sup>3</sup>.

5. A method as claimed in any one of claims 1 to 4, wherein the layer(s) of expanded (5, 6) or pre-consolidated (40, 41) graphite is/are compressed so as  
15 to obtain a consolidated block or blocks of graphite having a density greater than 100 kg/m<sup>3</sup>.

6. A method as claimed in any one of claims 1 to 5, wherein the layer(s) of expanded (32) or pre-consolidated graphite is/are compressed in a plurality  
20 of directions.

7. A method as claimed in claim 6, wherein the layer(s) of expanded (32) or pre-consolidated graphite is/are  
25 compressed in three orthogonal directions.

8. A method as claimed in any one of claims 1 to 5, wherein the layer(s) of expanded (5, 6) or pre-consolidated (40, 41) graphite is/are compressed in a  
30 single direction.

9. A method as claimed in any one of claims 1 to 8, wherein the layer(s) of expanded (5, 6, 32) or pre-

consolidated (40, 41) graphite is/are subjected to a single compression operation in each direction.

10. A method as claimed in any one of claims 1 to 9,  
5 wherein the layer(s) of expanded (5, 6, 32) or pre-consolidated (40, 41) graphite is/are subjected to a single compression operation.
11. A method as claimed in any one of claims 1 to 9,  
10 wherein the layer(s) of expanded or pre-consolidated graphite is/are subjected to a plurality of distinct compression operations in at least one direction.
12. A method as claimed in claims 1 and 11, wherein a  
15 first compression adapted to consolidate the layer(s) of expanded graphite is carried out in said direction in order to permit its/their manipulation, and subsequently a second compression adapted to impart a desired density to the consolidated block(s) is  
20 carried out.
13. A method as claimed in any one of claims 1 to 12,  
25 wherein a natural expanded graphite is used as the expanded graphite.
14. A method as claimed in claim 1, wherein at least one layer (32) of expanded graphite is covered, at least partially, with a layer (31) of expanded vermiculite, and all the layers formed are then compressed together  
30 so as to obtain, for each layer of vermiculite formed, a block, called a mixed block (22), of consolidated graphite/vermiculite.

15. A method as claimed in claim 3, wherein at least one of the pre-consolidated layers used is a layer, called a mixed layer, formed from at least two superimposed layers, one of expanded graphite and another of expanded vermiculite, compressed together in at least one direction in such a way that the graphite has a density ranging from 30 to 50 kg/m<sup>3</sup> and the vermiculite is consolidated, each mixed layer used being disposed on the pattern in such a way that the graphite layer is oriented towards the pattern.
16. A method as claimed in any one of claims 1 to 15, wherein heating/cooling elements are placed in at least one layer of expanded or pre-consolidated graphite during its formation.
17. A method as claimed in any one of claims 1 to 15, wherein at least one passage (27, 28) able to receive a heating/cooling fluid is formed directly in the graphite mass of at least one block, by placing at least one destructible (26) or removable tube in the corresponding layer of expanded (32) or pre-consolidated graphite during its formation, said tube(s) being destroyed or withdrawn once said block has been consolidated.
18. A method as claimed in any one of claims 1 to 17, wherein, during the compression of the layer(s) of expanded or pre-consolidated graphite, open concave forms, called capture forms, adapted to trap infrared waves, are impressed into at least one face, called an exterior face, of at least one block.

19. A method as claimed in claim 18, wherein the impressed capture forms have at least one frontal dimension ranging from 1  $\mu\text{m}$  to 2 cm and a depth ranging from 1  $\mu\text{m}$  to 10 cm.
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20. A mold obtained using a method as claimed in any one of claims 1 to 19.
21. A mold as claimed in claim 20, wherein it comprises at least one consolidated block, called a mixed block, having at least two bonded layers, including a layer of recompressed expanded graphite and a layer of recompressed expanded vermiculite at least partially covering said layer of graphite.
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22. A mold as claimed in either of claims 20 and 21, wherein it includes at least one consolidated block having at least one face, called an exterior face, of graphite which is provided with open concave impressed forms, called capture forms, adapted to trap infrared waves.
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23. A mold as claimed in claim 22, wherein the capture forms have at least one frontal dimension ranging from 1  $\mu\text{m}$  to 2 cm and a depth ranging from 1  $\mu\text{m}$  to 10 cm.
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24. A foundry mold as claimed in any one of claims 20 to 23.
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25. A mold, called an orthopedic mold, for molding orthoses or prostheses, as claimed in any one of claims 20 to 23.
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26. An art mold as claimed in any one of claims 20 to 23.

27. A method for molding objects, wherein a mold as claimed in any one of claims 20 to 26 is used.

5 28. A foundry method for casting a molten alloy, wherein a mold as claimed in claim 24 is used.

29. A method for molding orthoses or prostheses, wherein a mold as claimed in claim 25 is used.

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30. A method for reproducing a work of art of the sculpture type, wherein a mold as claimed in claim 26 is used.